

BREAKTHROUGH

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SOME OBSERVATIONS ON THE EFFICACY OF THE HEMI-SYNC SYNTHESIZER

by
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Michael Hutchison is the author of Megabrain, an in-depth exploration of the revolution that has been taking place in the understanding of the brain. Megabrain also explores a number of "brain machines" -- devices that purportedly deliver the type of brain stimulation that leads to rapid brain growth and expansion of mental capabilities.

During the fall of 1986 and the spring of 1987, I conducted a series of "Megabrain Workshops" during which participants discussed and had first-hand experiences with a variety of devices to enhance mental functioning described in the book Megabrain: New Tools and Techniques for Brain Growth and Mind Expansion. Among these tools were Hemi-Sync tapes and the Hemi-Sync synthesizer. On several occasions I used the synthesizer 202 model, on other occasions the model 201B.

Generally, I connected the synthesizer with a cassette tape deck and large speakers set up facing the participants, the speakers on opposite sides of the room to insure separation of the Hemi-Sync tones. While the audience was arriving and being seated prior to my opening remarks, I played soft music combined

with frequencies in the alpha and theta range. I found this produced a feeling of calmness -- the participants quickly took their seats and made the transition from the bustling excitement of just-having-arrived to quiet, relaxed attention.

There followed a short period during which the participants spontaneously became silent and assumed the upright postures and relaxed, slightly smiling faces of centeredness. After a few minutes of opening remarks, I adjusted the synthesizer to add a beta tone to the slower tones (without explaining what I was doing) and continued with my presentation. I found this helped produce a relaxed, but alert, state in the participants.

Later, when I was describing the Hemi-Sync process, I explained what I had done earlier (adding the beta). In many cases, participants remarked they remembered that at that time they felt they had for some reason entered a state of unusual alertness and focus.

In explaining the workings of beat frequencies, I found the synthesizer particularly valuable. I could turn off the music so that only Hemi-Sync tones were audible, and then adjust the balance completely to the left, then completely to the right, and back to the center. This enabled the audience to clearly hear the different frequencies and note that the "beat" was only present

when the two frequencies were combined. It was then easier for them to understand how, when heard through headphones, such beat frequencies could be effective in altering brainwave frequencies.

During the hands-on workshop that followed, I had individual participants listen to the synthesizer through headphones (with and without selected music), encouraging them to choose different frequency settings and to spend sufficient time in each setting to get a feel for how that setting affected them. In general, I found people were able to distinguish and note the different effects of delta, theta, alpha, and beta frequencies, as well as comment about how they felt the different frequencies could have applications in their lives.

For me, the most fascinating result of using the synthesizer in these workshop settings was that with a variety of other devices on hand that influenced brain functioning, I was able to observe the effects of Hemi-Sync when combined with other tools. Once workshop participants were familiar with the nature of Hemi-Sync, many were very eager to explore this sort of combining.

The combinations included the synthesizer with:

— THE MIND MIRROR —

This EEG provides the user with a full-spectrum, real-time image of the brain wave activity of both brain hemispheres. Users in the workshops were encouraged to explore various self-regulatory techniques (e.g., differing meditation styles, deep breathing, alternate nostril breathing, visualizations) and observe their effects on brain wave activity. Particular emphasis was placed on attempting to increase hemispheric

balance, decrease activity in the beta range, and increase amplitude in the alpha and theta ranges.

After spending sufficient time with the Mind Mirror to become familiar with their characteristic brain wave patterns, users were encouraged to put on headphones and listen to various Hemi-Sync frequencies generated by the synthesizer while still hooked up to the Mind Mirror. Virtually immediately, with the user hearing a theta signal, for example, there would be an observable increase in organized theta activity on the Mind Mirror. Since there would always be a number of observers kibitzing, the quick alteration in brain wave patterns that resulted from the Hemi-Sync tones was impressive not only to the user, but also to the observers. The combination of these devices made for a powerful instructional technique. It provided the users an opportunity to explore the various Hemi-Sync frequencies, observe their own brain wave patterns, and make personal associations with the "feeling" of different brain states.

— THE GRAHAM POTENTIALIZER —

This is a cot that revolves the user through an electromagnetic field. The movement stimulates the vestibular system (by moving the millions of nerve endings in the inner ear) and through it the cerebellum and the entire brain. In the workshops, users wore headphones and listened to Hemi-Sync while revolving on the GP. Users found the combination produced profound states of relaxation and led in several cases to experiences that were highly charged emotionally... including spontaneous "being there" relivings of forgotten or repressed past experiences. One woman returned to a childhood trauma involving her

mother and emerged from the experience with a feeling she had made an important breakthrough. She had become aware of material she had previously repressed, was able to understand the past in a different way, and was now closer to and more sympathetic to her mother.

The inventor of the GP, David Graham, told me he felt the Hemi-Sync synthesizer worked synergistically with his device, adding to its effectiveness.

—THE TRANQUILITE—

This combines a featureless visual field (or ganzfeld) with a pink noise generator which effectively blocks out external sound and visual stimuli. This produces, in many users, a "blank-out" effect, when the visual system, with the unvarying input, seems to shut down, creating heightened internal awareness and deep relaxation.

In the workshops, I experimented with substituting Hemi-Sync tones (theta) from the synthesizer for the pink noise, and observed that users very quickly went into the blank-out state. This happened consistently, and I believe Hemi-Sync and the ganzfeld have a potentiating effect. This makes sense, since the ganzfeld seems to produce the blank-out effect as a result of a redirecting of attention by the reticular activating system (similar to a flotation tank or sensory deprivation environment (such as the individual CHEC unit environment at the Monroe Institute)). In the absence of visual stimulation, the sound stimuli of the Hemi-Sync tones increase in effectiveness.

-HYPNO PERIPHERAL PROCESSING-

This is a series of tapes devised and

recorded by Dr. Lloyd Glauberman and neurophysiologist Dr. Phillip Halboth of New York City, intended for listening while in a flotation tank. Drawing on indirect suggestion techniques of Ericksonian hypnosis and the latest research in neurolinguistic processing and lateralization of function in the brain hemispheres, the tapes use a "double induction" method, with two separate fairy-tale type stories being told in each ear, both containing a variety of indirect suggestions. Yet another series of suggestions has been imbedded in the tapes by an imaginative combining and interweaving of words and phrases from the separate sound tracks.

I encouraged workshop participants to listen with headphones to these tapes played through the synthesizer (in the delta and theta frequencies). In comparison with those who listened to the tapes without benefit of Hemi-Sync, those who used Hemi-Sync found the experience more powerful -- so powerful, in fact, that several people told me they had profound breakthrough experiences while listening. Clearly the Hemi-Sync tones made listeners more receptive and more open to the reprogramming and behavioral modifications suggested by the tapes.

—NEUROELECTRIC DEVICES—

Workshop participants experimented with a variety of transcutaneous electroneural stimulation (TENS) devices that have been designed to deliver transcranial electrostimulation (TCES) (i.e., stimulate the brain). These devices differ in number and placement of electrodes, wave form, frequency, and intensity, and include the Alpha Stim, Pulstar, Brain Tuner, Alpatronics, and Endomax. All the devices seem to enhance mental functioning, through mechanisms

that are not completely understood but probably include: stimulating the release of neurotransmitters and neuropeptides associated with various types of learning (e.g., the endorphins, vasopressin, the catecholamines); synchronization of brain hemispheres; entrainment of brain wave activity; and stimulation of the reticular activating system... leading to heightened attention and alertness.

I found that participants varied greatly in their individual perception of TCES -- many people had immediate and strong responses, others noticed subtle effects. Some (less than a third) did not seem to be effected by TCES. In such cases, I would often suggest the subject put on earphones and listen to Hemi-Sync tones while still receiving TCES. The users would then usually find that they had become sensitive to the TCES. Others who were quite sensitive to electrostimulation found that combining it with Hemi-Sync tones intensified the experience being produced by the TCES. I suspect that since both Hemi-Sync and TCES produce greater coherence of the brain's electrical activity, the combination of the two modes has a potentiating effect.

On the whole, I found that the combination of Hemi-Sync with other types of brain enhancing technology produced more rapid and intense alterations of consciousness than were produced by the individual devices used alone. These alterations on consciousness were variously described by workshop participants as: "deep meditation" (from meditators with as much as 20 years of meditative experience); dramatic reductions of chronic pain (from several sufferers of arthritis, lower back problems, migraine headaches); intense mental clarity; sudden flashes of insight or "Eureka!" moments;; euphoria; profound relaxation; lucid

dreaming; peak experiences; and out-of-body experiences. I did not encounter anyone who had a negative response to the Hemi-Sync experience or to Hemi-Sync combined with other mind-altering tools. Workshop participants were consistently eager to explore the effects of devices used in combination.

Clearly, my observations are subjective and the reports by the workshop participants no more than anecdotal evidence of the effects of the Hemi-Sync synthesizer, alone and in combination. Controlled studies of larger groups could be easily designed and would be extremely valuable.

**HEMI-SYNC AND HOSPICE:
A NATURAL PARTNERSHIP**
by
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In February 1986, HOC began to investigate the potential of The Monroe Institute (TMI) auditory system with selected patients. HOC is a non-profit agency that provides specialized home care for patients in the last stages of life-threatening illnesses. Nurses, other health professionals, and a corps of trained volunteer patient/family support practitioners (hereafter: support practitioners) address problems of pain, fear, anxiety, and loneliness in order for the end of life to be experienced as a natural event within the warm environment of the family.

At the time of this report (June 1987), HOC has used Hemi-Sync tapes with 16 patients -- some briefly, others over varying lengths of time. Three case histories are

given at the end of this report.

PURPOSE

- To alleviate pain and erase the memory of it.
- To relieve personal or interpersonal stress associated with life-threatening illness, death, or dying.
- To free the spiritual elements of the physical forces of the body.
- To bring peace, comfort, and harmony to patients and their families.

PROCEDURE

- Nurses and support practitioners who monitor the tapes are familiar with them and use them for their own benefit.
- Nurses offer Hemi-Sync tapes to selected patients as an option to help control their symptoms.
- Before the first visit with a tape, the nurse describes the tape and the possible benefits.
- Small stereo cassette players and headsets are provided for patients who don't have them.
- When appropriate, the nurse or support practitioner offers primary family caregivers the option of using a tape for their own benefit.
- The nurse, Director of Volunteers and Education, and the support practitioner go together on the first visit with a tape.
- The nurse monitors patient's vital signs before, during, and after the first exposure to a tape.
- A small notebook is left with the patient and/or caregiver for keeping a brief record of the date, time, and

response for each tape session.

- After the first visit with the nurse, the support practitioner visits the home alone each week, discusses the tape with the patient (and caregiver, when appropriate), and monitors vital signs before, during, and after the tape is played. The nurse supports use of the tape by reading the patient's notebook each week and discussing the patient's reactions to the tape.

- A tape report is filled out by the nurse and/or support practitioner on the first visit and by the support practitioner on subsequent visits (the reports are placed on the patient's chart).

- The patient's responses to the tape are discussed at HOC team meetings when patient care plans are established.

WHAT WE HAVE LEARNED

Patients who have benefited most from the use of Hemi-Sync tapes have been people who:

- trust easily
- respond well to suggestions
- are not receiving total effectiveness from medication
- dislike sedation and the side effects of medication
- desire an alternative to the use of drugs
- are able to integrate new ideas into their own beliefs and practices

Interestingly enough, we have found that age and religious affiliation or lack of it are not important factors in the successful use of the tapes. Among the patients who have been helped -- a "backslidden" Baptist, an

agnostic, a Church of God minister, a 65-year-old Seventh Day Adventist, and a 35-year-old mother with no religious affiliation.

HOC nurses have found a number of helpful procedures when considering the introduction of a tape:

- Develop a trusting relationship/rapport with the patient and family.
- Listen to the patient for coping style in the past and present; noting how he/she manages stress.
- Evaluate what is going on with the patient -- If medication is not providing relief of symptoms, what is the pattern? Is there more pain at certain times of the day? If so, why? If a patient paces the floor, what is the cause (what is going on with the patient)?

Set goals for the Hemi-Sync tapes:

- Ask the patient, "What are your needs?"
- Determine the symptoms to be managed (e.g., pain, anxiety, restlessness, depression, weakness, loneliness, fear, etc.).
- Listen to the patient for the goals. (We found what one patient really wanted was more energy -- we had been working on pain control.)

Know the circumstances under which the tape will be used:

- Is the patient in a quiet, orderly environment?
- Will the patient be able to keep a record in the notebook provided by HOC or will a caregiver be responsible for record-keeping?
- Are there likely to be interruptions while the patient is listening to a tape? (If the patient lives alone, the

telephone may need to be left on the hook in order not to alarm family and friends.)

Move slowly into an introduction to the tapes, listening for patient preferences and practices:

- When one patient was asked if she had heard of guided imagery, she said "Is that like seeing things? Sometimes the devil sits on my shoulder. I go to the door and open it. Then I tell the devil to leave. I close the door and he's gone." She was told that was fine guided imagery and she has quite successfully used the tapes for relief of symptoms.

Be familiar with the tape the patient will be using by using it yourself:

- When a patient expresses reactions to details on a tape, it is important to understand those details and know what the patient is talking about.

Encourage patients to try the tapes and then make their own decisions about using them:

- Quite frequently a patient will develop new symptoms and need support in a different way than the present tape is programmed to provide.

- The reasons for rejection of a tape need to be discovered and respected. A new tape may help, but the patient is the one to decide.

Follow-up:

- Weekly visits of the support practitioner and regular follow-up by nurses and social workers are vital to successful use of the tapes. The staff needs to know if symptom management with medication and/or tape use has achieved the goal(s) set by the patient. The patient needs

reassurance there is ongoing support from the Hospice team.

- If a patient complains of symptoms but has little inclination to participate in goal-setting, follow-up visits by the staff are needed to encourage the patient and to counsel the family.

- With encouragement, patients will try using tapes in different ways and in different times and places (see case histories).

- The patient may need nursing intervention such as a call to a physician's office for permission to listen to a tape during the administration of chemotherapy.

Limitations:

- At HOC, use of the tapes is determined as much by the availability of people trained to administer tapes and work with patients as by patients who could benefit from the tapes.

- Another limitation is time. Nurses are too busy to monitor the tapes each week.

OTHER USES

HOC has also used TMI technology in other ways:

- The tapes have been used successfully by family primary caregivers to help reduce frustration and anxiety.

- A support practitioner used the Emergency Treatment Series in conjunction with eye surgery which resulted in pain reduction and shortened recovery time.

- Other support practitioners have used Hemi-Sync tapes to aid in sleep and lower high blood pressure.
- A Model 202 Synthesizer has been

used to good effect in an HOC training program.

RECOMMENDATIONS

Experience with TMI Hemi-Sync tapes lead us to make the following recommendations to any hospice considering use of the tapes:

- 1) A person on the hospice team who uses the tapes and is familiar with them, who assumes responsibility for tapes and equipment loaned to patients, who coordinates orientation of staff and volunteers with assignments of support practitioners to work with patients/families, and who maintains contact with TMI.

- 2) Knowledge of individual patient/family belief systems is a prerequisite. Since the Hemi-Sync process lends itself to all people without regard to customs and mores, the tapes can be explained in terms each patient understands. The important factor in introducing a tape is to see the world as the patient sees it.

- 3) Use positive reinforcement, avoiding negative statements and words. For example: to say, "The tapes have been used for pain," is to keep "pain" in mind; to say, "The tapes have been used to relieve symptoms and make patients more comfortable," is to reinforce thoughts of relief and comfort.

- 4) Know how well a family is coping with death before offering a tape that encourages a patient to "let go."

One of the nurses and a social worker at HOC noted how an elderly mother near death was "hanging on." They explained to her daughters that their mother was hanging on because she thought her children needed her. One daughter talked to her mother

and gave her permission to "let go."
The mother died soon afterwards.

A son who heard what his sister said became extremely angry. "That was a terrible thing to say to mother!" he raged. "She would be afraid."

Conclusions about where the fear really lay would have done little good if the son had taken the nurse and social worker to court for urging his sisters to help his mother die.

5) Expect varied responses from different patients and from the same patient at different times. A tape may trigger an unexpected response in a patient.

6) If a synthesizer is used in a volunteer training program, discuss the process with guest instructors and provide printed material about the process in advance.

7) If a synthesizer is used in a training program, ask for specific evaluations of the music used. In our evaluations by class members, we did not single out the music. If we had, we might have received some helpful feedback.

— THREE CASE HISTORIES —

J.M. -- A patient who had hemorrhaged and was hanging on near death for many weeks. He listened to the "Deep 10 Relaxation" tape one time. The next day, his nurse reported he was beginning to die, which he did two days later.

When the tape had been first mentioned to the sister with whom he lived, she was reluctant to permit use of it. However, at the funeral she sought out the nurse and thanked her.

The HOC program provides a one year bereavement follow-up period, during which the family is contacted

regularly as needed. At the end of a year, a social worker calls or visits for a closing assessment. When the social worker contacted J.M.'s sister at the end of the year, the sister talked about the tape again, saying it was the best thing that happened to him. "He couldn't let go, and the tape helped him let go and die in peace."

G.W. -- A patient who gave the HOC nurse and support practitioner some challenging moments. He and his wife were both receptive to the "Deep 10 Relaxation" tape. The goals were effective pain control without increasing medication and relief of depression.

G.W. responded well to the tape, falling asleep the first time he listened to it. During the days that followed, he often asked his wife to bring it to him, "even when he wasn't hurting."

However, as his physical condition deteriorated, he suddenly refused the tape and all medication. The support practitioner found him naked one day, rolling around on the bed in a darkened room, moaning, "My soul is burning, burning, burning..." His distraught wife said he alternately asked for all of his pain medication at once or refused to take any of it.

According to his wife and daughter, the trouble began when he heard a train on the tape:

"At first the tape helped a lot. He was eating good. Then he got to another stage... he hates to let go... he told me, 'I don't like that damn music.' His mother said he ran away when he was 16. He hopped a freight train. He used to hobo around. He told me a little about it when we were first married. I think something bad happened, but I don't know what."

The support practitioner knew another support practitioner at HOC who is also an evangelist. She asked G.W.'s wife if she thought her husband might like to talk to the evangelist. The wife was reluctant to bring in anyone new.

The support practitioner contacted G.W.'s nurse who visited, administered pain medication, prayed with G.W., talked to his wife, and finally in desperation called the Director of Volunteers.

The Director of Volunteers and the evangelist went out together. At first, the evangelist sat quietly beside G.W.'s bed. Then she began to ask what was bothering him. At first he was noncommittal. This was the beginning of 45 minutes of heated talk, Bible reading, and prayer. When the evangelist departed, G.W. was resting quietly and the wife was crying tears of gratitude.

The next day, G.W. asked to talk to the evangelist again. As his wife was trying to reach her, the preacher from the wife's church walked in. G.W. had refused to talk to the preacher in the past, but this time he consented and, according to G.W.'s wife, "he accepted Jesus."

From that time until he died a few days later, G.W. was at peace. His funeral was conducted in the wife's church by the man both had come to trust.

The Hemi-Sync tape had brought on a crisis which led to resolving G.W.'s problem. The nurse commented to his support practitioner, "We had been working on the tip of the iceberg with medication -- you uncovered the iceberg."

(A word of caution: If considering a procedure with a patient similar to that followed for G.W., please note Recommendations 2 and 5. An

important factor in supporting a patient using a tape is to see the world as the patient does.)

V.E. -- A 72-year-old widow who lives alone. She has lost two husbands to cancer, and has had it herself for 11 years. She first developed breast cancer, then cancer of the colon, and then metastasis to the liver, which was her condition when she was admitted to Hospice in May 1986. Although there have been many ups and downs, she is still going strong. "I know I may die any time. I won't give up. I like living and I'm not going to rush it," she told the social worker.

V.F. was referred by a staff nurse to the Director of Volunteers for possible use of a relaxation tape when she complained of nervousness, but preferred not to take large doses of tranquilizers. "I have never been a nervous person," she said, "but I've been walking the floor since the chemotherapy."

"Deep 10 Relaxation" was left with V.F. after the nurse and support practitioner visited and monitored her use of it. The following week, V.F. reported:

"I haven't been taking as many pills since I began listening to the tape. I was taking one pill every four hours or less. Yesterday, I only took one pill all day. I know the tape is helping me."

She also reported improved sleep. When she had pain she used the tape, except at night in bed. Her cassette player was hooked up in the living room. She lay on the sofa to listen to the tape. Taking the tape to bed hadn't occurred to her. But she said she would try it.

That was the beginning of her experiments with procedures new to her. Since then, she has used

visualization both with and *without* the tape. "Sometimes I close my eyes and hear the voice telling me to relax... and I feel better."

Surf was new to her. She said she had never heard the surf in her life and had never seen an ocean. But when the "Surf" tape was suggested as an alternative to "Deep 10" (which had "too much voice" at the time), she was willing to try it. Although nervousness and restlessness were two of her frequent complaints, she lay quietly after first hearing the "Surf" tape, finally opening her eyes and saying, "I'm too relaxed to move."

Eventually the surf, too, needed a supplement -- a little voice and help with weakness. So we tried "Energy Walk." She was delighted with it. She has batteries for her cassette player now, and takes it with her when she goes to the hospital for chemotherapy. At night when she has pain and feels restless, she walks the floor carrying the cassette player and wearing the earphones.

V.F. faithfully records her use of the tapes in the notebook from Hospice. Some of her latest entries reveal her confidence in the tapes:

"I played the tape twice today and it quieted my nerves... not only does it help and relax me, I feel that something is happening in my body and I know it is doing something for me."

I played the tape again today and counted my breathing with my hand over the cancer. It does something and makes me feel all over better and relaxed. I went off to sleep."

What will HOC be saying of gentle, trusting V.F. in the next TMI report? Whatever we say, this we know: she has taught us much about use of the tapes -- and at HOC we love her.

This ends our second report to TMI. With each new patient who uses the tapes, we learn more about the possibilities of the Monroe auditory system in a hospice setting. And we invite other members of TMI who are affiliated with a hospice organization to try the tapes with selected patients, for Hemi-Sync and hospice are a natural partnership.

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